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Disambiguation and Context

The major goal of this paper is to show how relevance theory (Sperber and Wilson 1986, 1987, 2002, 2005; Wilson and Sperber 2002, 2004) explains the process involved in disambiguation as it is performed by comprehenders processing discourse in overt intentional communicative situations.

Relevance Theory: Basic Assumptions and Claims

Relevance theory as originally formulated by Sperber and Wilson (1986) and later elaborated on and refined by the originators (Sperber 1994; Sperber and Wilson 1987, 1997, 2002, 2005; Wilson and Sperber 2002, 2004; Wilson 1999, 2005, 2006) and other researchers working within this psycholinguistic model (cf., for instance, Carston 2002, 2004, 2005, 2006; Žegarac 2006), assumes that human cognition is geared towards relevance (Sperber and Wilson 1986: 47). This means that performing different mental operations which have to do with directing attention at certain events, processing incoming stimuli, representing mentally the information that is available as input is believed to be affected by the search for relevance.

Orientation towards stimuli, phenomena or inputs that are potentially relevant and processing them in the way that will maximize their relevance is postulated to be an essential biologically rooted ability that underlies human cognitive functioning (cf. Yus 2005: 512). This mechanism is assumed to have developed in the course of phylogenesis and may be related to the species instinct for self-preservation (Sperber 1994). As Wilson and Sperber (2004: 610) argue,

> As a result of constant selection pressures toward increasing efficiency, the human cognitive system has developed in such a way that our perceptual mechanisms tend automatically to pick out potentially relevant stimuli, our memory retrieval mechanisms tend automatically to activate potentially relevant assumptions, and our inferential mechanisms tend spontaneously to process them in the most productive way.

If conceptual processes are relevance-driven and if processing of incoming information is geared towards maximizing relevance, it seems logical to assume that a cognitive principle of economy will be at work (Sperber and Wilson 1986; Wilson and Sperber 2002, 2004). This axiom is formalized within the relevance-theoretic framework as the Cognitive Principle of Relevance, in accordance with which "human cognition tends to be geared to the maximisation of relevance" (Wilson and Sperber 2004: 610).

Utterance Comprehension – The Relevance Theoretic Model

The Cognitive Principle of Relevance is the cornerstone of the model of communication that Sperber and Wilson have developed. Granted that human cognition is oriented towards relevance, since in intentional verbal communication the communicator demands the addressee's attention, it is only to be expected that what is being communicated should come with some kind of guarantee that it is relevant. In other words, it is postulated on this model that by claiming the audience's attention in overt intentional communication, the speaker creates expectations that what she is saying will be relevant to the hearer. In overt intentional communication then, which is called ostensive communication by Sperber and Wilson (1986: 49), the very act of claiming the addressee's attention has to do with raising expectations of relevance.

This claim is formalized in relevance theory as the Communicative Principle of Relevance. The Communicative Principle of Relevance states that "every ostensive stimulus conveys a presumption of its optimal relevance" (Wilson and Sperber 2004: 612). The presumption of optimal relevance entitles the audience (a) to treat a given ostensive stimulus (produced by the communicator) as relevant enough to be worth processing, and (b) to approach it as the most relevant one compatible with the communicator's abilities and preferences (Wilson and Sperber 2004: 612). This means that on this model it is postulated that when processing verbal stimuli the interpreter tacitly assumes that what is communicated is at least worth his attention and should be treated as the most relevant stimulus that the speaker is willing and able to produce (Sperber and Wilson 1986: 270–271). While clause (a) of the presumption of optimal relevance predicts that, by definition, verbal stimuli come with a guarantee that the speaker will say something which – in her estimation – is worth the addressee's while, clause (b) ensures that the hearer necessarily treats the utterance as the most relevant one that the speaker is able to produce. This parameter spells out certain expectations that constrain the interpretation process

and indicates what speakers should anticipate about the hearer's processing of the incoming ostensive stimulus.

The presumption of optimal relevance is the backbone of the interpretational heuristics that is offered on the relevance-theoretic approach. This heuristics is a practical procedure that interpreters are believed to adhere to in recovering the speaker's meaning. The relevance-oriented comprehension heuristics instructs the interpreter to "(a) to follow a path of least effort in constructing an interpretation of the utterance (and in particular in resolving ambiguities and referential indeterminacies, in going beyond linguistic meaning, in supplying contextual assumptions, computing implicatures, etc.) in order of accessibility, and (b) to stop when [the interpreter's] expectations of relevance are satisfied" (or abandoned) (Sperber and Wilson 2005: 360). It is posited then that formulating the hypothesis about what a particular utterance means, the hearer takes the easiest route to be followed and treats the fist interpretation that allows him to recover adequate cognitive effects as the one actually targeted by the speaker. This heuristics explains how and why an utterance will have a certain contextual interpretation to the exclusion of other interpretations it might potentially give rise to (Žegarac 2006: 1703): the first accessible interpretive hypothesis that the comprehender finds relevant enough is supposed to surface as the meaning actually intended by the communicator in a given discourse situation.

Participants in communicative exchanges are viewed on this approach as information-processing devices. It is claimed that in oral discourse, by producing an utterance the speaker modifies the cognitive environment of the hearer in order to achieve an intended effect. Like a number of other researchers working in the field of pragmatics, Sperber and Wilson maintain that meanings that are communicated verbally, are not merely decoded, but need to be *inferred* from what is said. This premise follows from the fact that what is said severely underdetermines what is conveyed (cf., among others, Bach 2004; Bezuidenhout 1997; Carston 2002, 2004, 2006; Mason 2006; Sperber and Wilson 1997, 2002, 2005, 2006; Wilson 2006; Pagin and Pelletier 2007; Vicente and Martinez-Manrique 2005; Žegarac 2006).

The basic assumption is that what the communicator needs to do in order to communicate a certain meaning amounts to providing sufficient evidence for the addressee to recover the intended meaning. In nonverbal communication, an ostensive gesture may be enough to convey the intended meaning, e.g. pointing to the leash hanging near the door may be enough to inform the addressee that the communicator intends to take the dog for a walk, provided that the

addressee can be expected to formulate this hypothesis on the basis of the intentions made manifest by this communicative act. Thus as long as it can be confidently predicted that the audience will access the intended interpretation of a certain ostensive gesture in a given situation, the intended meaning can be conveyed simply by producing this gesture even if it is not part of any code or social convention (cf. Carston 2006: 61).

In verbal communication, a piece of evidence from which the speaker meaning is to be inferred comes in the form of an utterance, which encodes linguistic meaning. The linguistic form that is decoded in utterance processing is assumed to become the input to the relevance-driven inferential process that the hearer engages in (cf. Carston 2006).

As it has been indicated earlier, the hearer is assumed to accept the decoded verbal signal addressed at him as a piece of evidence from which he needs to infer the intended meaning. On this approach, utterances are believed to "encode logical forms (conceptual representations, however fragmentary or incomplete) ... [which provide] an important clue to the speaker's intentions" (Wilson and Sperber 2004: 614–15). The hearer is supposed to work on the assumption that what has been said is the most relevant stimulus that the communicator was able and willing to produce. Looking for the interpretation that satisfies the presumption of relevance, the hearer engages in a non-demonstrative inference process, constructing interpretive hypotheses about the meaning conveyed.

In order to recover the speaker meaning, the hearer (or reader, as the case may be) needs to perform a series of inferential subtasks. These are postulated by Wilson and Sperber (2004: 615) to embrace:

1) Constructing an adequate hypothesis about the explicit content (EXPLICATURES) via decoding, disambiguation, reference resolution, and other pragmatic enrichment processes.
2) Constructing an appropriate hypothesis about the intended contextual assumptions (IMPLICATED PREMISES).
3) Constructing an appropriate hypothesis about the intended contextual implications (IMPLICATED CONCLUSIONS).

At the level of explicit import then, explicatures are formed. An explicature is defined as "an ostensively communicated assumption which is inferentially developed from one of the incomplete conceptual representations (logical forms) encoded by the utterance" (Carston 2002: 377), and strictly speaking, has to do with what is in fact *said*. Explicatures result from the development of linguistically encoded meaning to full propositionality (Ariel 2002: 1005),

and are "an amalgam of decoded linguistic meaning and pragmatically inferred meaning" (Carston 2004: 636).

As the definition presented above indicates, implicatures recovered in the course of utterance comprehension can either be implicated premises or implicated conclusions. Assumptions accessed as context in which the incoming information is to be processed are identified as implicated premises, whereas inferences derived from the contextual implications combined with the explicit content of the utterance form implicated conclusions.

The subtasks that have been just described should not be thought of as performed in a linear sequence. Utterance comprehension, as the originators of relevance theory emphasize, is an on-line, automatic, instantaneous process, and "hypotheses about explicatures, implicated premises and implicated conclusions are developed in parallel against the background of expectations which may be revised or elaborated as the utterance unfolds" (Wilson and Sperber 2004: 615). This suggests that there is a constant mutual adjustment of explicit and implicit content during the interpretation process, with all "inferential elaborations . . . performed automatically and unconsciously" (Sperber and Wilson 2005: 366) by a specialized dedicated inferential module responsible for verbal comprehension in the human mind (cf., among others, Sperber and Wilson 2002; Wilson 2005).

Disambiguation and Relevance

How does the relevance theoretic model account for disambiguation processes? Like many linguists (e.g., Gibbon, this volume; Jucker *et. al.* 2003; Klepousniotou 2002; Naess and Gullvag 1996; Nerlich and Clarke 2001; Rodd *et al.* 2002) Sperber and Wilson regard ambiguity to be a pervasive phenomenon in ordinary language use.

At this juncture, let us analyze an example. Consider (1):

(1) I looked at the chest.

In the absence of any context, (1) is ambiguous. As the entry for the noun *chest* in *The American Heritage Dictionary of the English Language* (2000, 4th ed., Houghton Mifflin Company) shows, there are several meanings that it can express:

1. The part of the body between the neck and the abdomen, enclosed by the ribs and the breastbone; the thorax.

2. a. A sturdy box with a lid and often a lock, used especially for storage.
   b. A small closet or cabinet with shelves for storing supplies
3. a. The treasury of a public institution.
   b. The funds kept there.
4. a. A box for the shipping of certain goods, such as tea.
   b. The quantity packed in such a box.
5. A sealed receptacle for liquid, gas, or steam.
6. A bureau; a dresser.

   [Middle English, from Old English cest, *box*, from West Germanic *kista, from Latin cista, from Greek kistē.]

The utterance in (1) is thus multiply ambiguous. As soon as context is supplied though, only one reading surfaces; in (1a) this is the 'box' reading of the item in question:

(1) (a) . . . I looked at the chest . . . "Pa says it must never be opened without Cousin Rachel's permission," said Cecily.
(from *The Story Girl* by Lucy Maud Montgomery
<http://digital.library.upenn.edu/women/montgomery/story/story.html>)

A different meaning will be assigned to the word *chest* if the co-text is like the one in (1b):

(1) (b) . . . I looked at the chest and the arms and finally the face, and for the first time I was able to recognize the person looking back at me, for the first time I saw me.
(from "Reflections of me" by Shamus Greenman,
<http://www.bmezine.com/news/edit/A40214/artrefle.html>)

Here is how the relevance theoretic approach accounts for this. It is postulated that understanding utterances involves both decoding and inference. The decoding process is assumed to be performed by an autonomous language perception module. Having identified a certain linguistic signal (acoustic or graphic), this system executes a series of grammatical computations, or mappings, resulting in an output representation, which is the logical form of the sentence or phrase being processed. It is a structured string of concepts, with logical and causal properties (cf. Carston 2002: 57). It is not-fully propositional, so it functions as a template from which a fully-fledged proposition will be developed through pragmatic inferencing that the comprehender needs to engage in. The words as decoded by the interpreter provide access to lexical,

logical and conceptual entries in the language user's mind. While lexical entries store essential information about the linguistic properties of lexical items, and logical entries embrace logical semantic formulas for a given concept, the encyclopaedic entry affords access to information about the extension or denotation of the concept as encoded by a lexical item in the language. This information is assumed to be stored as a set of assumptions about the objects, events and/or properties that instantiate the decoded concept (Sperber and Wilson 1986: 87). Encyclopaedic entries typically vary across speakers and times, they are open-ended and subject to restructuring and modification, with partial access to the most useful ones stored under a certain concept brought to bear in utterance processing (cf. also Carston 2002, 2006; Sperber and Wilson 2006).

Coming back to the examples under scrutiny, the decoding process and pragmatic inferences would yield the box=container interpretation for the word *chest* in the context (1a). Why? The set of most relevant and immediately available assumptions brought to bear in the interpretation process, with the highly accessible ones about opening treasure chests, which often contain valuables, are responsible for this meaning surfacing in the context. Thus the co-text in (1a), in which the verb phrase *be opened* appears, affords the interpreter immediate access to the box=container interpretation, as the *chest=box* schema includes an assumption that chests can be used to store various kinds of (precious) objects. Switching the context (by changing the co-text) as in (1b) results in a different meaning assigned to the noun *chest.* So let us analyze (1b), repeated below for convenience:

(1) (b) . . . I looked at the chest and the arms and finally the face, and for the first time I was able to recognize the person looking back at me, for the first time I saw me.

The co-text in (1b) gives the interpreter access to encyclopedic entries of different human body parts and the shortest, or in other words the most relevant processing of the lexical item *chest*, would be the body part reading.

Both these examples show how pragmatic enrichment necessarily contributes to the recovery of what is said (not just to what is communicated). As Wilson emphases (2004: 354), understanding of what is meant is a matter of following a path of least effort in mutually adjusting explicit and implicit content and context until the interpreter's expectations of relevance are satisfied (or abandoned), so in both contexts only one – cheapest in terms of effort and securing positive cognitive effects – interpretation is recovered.

In principle then, the context in which an utterance is processed, in the examples under discussion reduced to the co-text, plays a crucial role in the comprehension process. This becomes even more obvious when a slight manipulation of context, as in (1c) below, diametrically changes the interpretation accessed as optimally relevant in a given discourse situation. So a minor modification of (1a) resulting in (1c) will bring forth the body part reading, and not the box reading of the word *chest*, even though the verb *open* appears in the co-text. This happens because the body part reading will be primed in the context of assumptions about opening the human chest for operation or autopsy purposes made highly available by co-text in (1c):

(1) (c) . . . I looked at the chest . . . "Let's open it," I said. "We need to find out what his lungs are like."

A psycholinguistic experiment might reveal if in a context neutral situation, (1c) would be interpreted as a garden-path utterance, but it is not my concern here. Sperber and Wilson and other relevance researchers have carefully analyzed garden-path utterances (cf., among others, Merino Ferrada 2002; Solska 2008). The originators of the theory suggest that "the outcome of the normal disambiguation procedure is not automatically accepted as the right propositional form. It is rejected if it fails to satisfy [the criterion of consistency with the principle of relevance]" (Sperber and Wilson 1986: 184). So disambiguation hypotheses, just like any other interpretive hypotheses recovered in the course of processing discourse, are formulated only tentatively and will be abandoned if discovered not to be optimally relevant.

However, as Wilson and Sperber (2007) emphasize, communication takes place at a risk, so misunderstandings are only to be expected. A viable theory of verbal communication needs to be able to account for what happens when there is a mismatch between the speaker intended meaning and the actual meaning recovered by the hearer. Communicative situations that involve disambiguation may potentially give rise to misunderstandings. In what follows, I would like to succinctly present how relevance accounts for miscommunication phenomena.

Another attested example with will be analyzed briefly. This time it is an utterance from a film, *Shrek*. Leaving aside the intricacies of film dialogue interpretation, which have to do with multiple embedding and assigning the film audience the role of well-informed overhearers (Bubel 2008), let us look at the nature of the misinterpretation that Shrek, the film's protagonist, falls victim of. Just after the Donkey learns that the cursed Princess changes into

a lady-ogre at sunset, he and Fiona talk about her sad plight. In the course of this conversation Fiona utters (2):

(2) (a) 'Princess' and 'Ugly' don't go together.
(b) That's why I can't stay here with Shrek.

What she means, which is manifest to both the immediate addressee, the Donkey, and the film audience is that the words *princess* and *ugly* can hardly function in the same context: princesses are supposed to be anything but ugly. Fiona's utterance in (2) is overheard by Shrek, who knowing nothing about the curse, takes *ugly* to be the word that Fiona uses to refer to him. As a result, he interprets (2) as communicating the explicature: *Fiona asserts that Princess and ugly Shrek do not go together*, and providing direct explanation why she cannot possibly stay with Shrek, which she makes explicit in (2b). This is the first relevant interpretation of (2a) that is accessible to Shrek hearing by accident what Fiona has said to the Donkey.

The interpretation process as taking place in Shrek's mind can be schematically represented as in Table 1.[1] Thus interpreting (2a) involves fist embedding the decoded logical form of the sentence uttered into a description of the speaker's overt behaviour, which with reference to (2a) has to do with identifying that Fiona has made an assertion. Since ostensive stimuli are invariably presumed to be optimally relevant, Shrek takes it for granted that the utterance is relevant as a comment on what Fiona thinks about Shrek: this is the most immediate context that he has. The most accessible background assumption that while processing (2a) surfaces in Shrek's mind is the implicated premise (d) *If Fiona asserts that Princess and ugly Shrek do not go together then Fiona thinks Fiona and Shrek are a poor match*. Processing explicature (e) FIONA$_i$ HAS ASSRETED THAT FIONA$_i$ AND UGLY SHREK DO NOT GO TOGETHER in the context of (d) leads to recovering the implicated conclusion (f) *Fiona thinks that Fiona and Shrek are a poor match*. Formulating this implicature may give rise to further assumptions that the interpreter may be ready to make, e.g. that he should not cherish any hopes about Fiona (as listed in (g) in Table 1).

[1] Inevitably, this kind of analysis suffers from some inadequacy. On the one hand, there is arbitrariness, which as the authors of relevance point out (Wilson and Sperber 2002: 609), is due to the fact that the reasoning process has been spelt out here in English sentences, whereas interpretive hypotheses will most probably be represented (if they reach a level of mental symbolization) in the language of thought rather than in any natural language (cf. also Sperber and Wilson 1997). On the other hand, all these enrichments and adjustments happen simultaneously and not linearly, unlike what Table 1 presents.

Table 1. Wilson and Sperber's (2004: 616, cf. also 2002) schematic utterance interpretation model applied to (2a).

(a) Fiona has said, 'Princess and ugly don't go together.'	*The encoded (incomplete) logical form of Fiona's utterance gets embedded into a description of Fiona's overt intentional behaviour.*
(b) Fiona's utterance is optimally relevant.	*The presumption of relevance conveyed by any stimulus produced in overt intentional communication (here: Fiona's verbal behaviour) results in creating this wxpectation.*
(c) Fiona's utterance will achieve relevance as an assertion about what she thinks of Shrek.	*Expectation raised by (b) and the fact that such an utterance would be most relevant to Shrek, who believes Fiona and Donkey are talking about him.*
(d) If Fiona asserts that Princess and ugly Shrek do not go together then Fiona thinks Fiona and Shrek are a poor match.	*First assumption to be accessible to Shrek which, together with other adequate premises, might satisfy expectation (c). Treated as an implicit premise of Fiona's utterance.*
(e) FIONA$_i$ HAS ASSRETED THAT FIONA$_i$ AND UGLY SHREK DO NOT GO TOGETHER.	*First pragmatic enrichment of the logical form of (2a) to have been made by Shrek, which together with premise (d) will lead to the satisfaction of (c). Treated as explicature of Fiona's utterance.*
(f) Fiona thinks that Fiona and Shrek are a poor match.	*Inferred from (d) and (e), meeting expectation (c); accepted as an implicit conclusion of Fiona's utterance (2a).*
(g) Shrek should not cherish any hopes about Fiona.	*Inference from (f) and background knowledge. One of several potential weak implicatures of Fiona's utterance, which together with (f) satisfy expectation (b).*

Yet a different interpretation is intended by Fiona addressing the Donkey in this scene. How does the intended addressee interpret Fiona's utterance? Table 2 presents the interpretation process in a schematic way.

The major difference in how the interpretation proceeds here has to do with the fact that the Donkey's expectations of relevance in the immediate

Table 2. A schematic relevance theoretic utterance interpretation model applied to (2b) (modelled on Wilson and Sperber 2004: 616).

(a) Fiona has said, 'Princess' and 'ugly' don't go together.'	*The encoded (incomplete) logical form of Fiona's utterance gets embedded into a description of Fiona's overt intentional behaviour.*
(b) Fiona's utterance is optimally relevant.	*The presumption of relevance conveyed by any stimulus produced in overt intentional communication (here: Fiona's verbal behaviour) results in creating this expectation.*
(c) Fiona's utterance will achieve relevance as an explanation about how Fiona feels.	*Expectation raised by (b) and the fact that this kind of assertion would be most relevant in the context of the conversation about Fiona's plight.*
(d) If Fiona asserts that Princess and ugly do not go together then Fiona thinks Princesses are not supposed to be ugly.	*First assumption to be accessible to the Donkey which, together with other adequate premises satisfies expectation (c). Treated as an implicit premise of Fiona's utterance.*
(e) FIONA$_i$ HAS ASSRETED THAT THE WORD 'PRINCESS' AND THE WORD 'UGLY' DO NOT GO TOGETHER*.	*First pragmatic enrichment of the logical form of (2b) to have been made by the Donkey which together with premise (d) will lead to the satisfaction of (c). Treated as explicature of Fiona's utterance.*
(f) Fiona thinks Princesses are not supposed to be ugly.	*Inferred from (d) and (e), meeting expectation (c); accepted as an implicit conclusion of Fiona's utterance (2b).*
(g) Fiona will be ready to do everything to undo the spell.	*Inference from (f) and background knowledge. One of several potential weak implicatures of Fiona's utterance, which together with (f) satisfy expectation (b).*

communicative context are related to explaining how Fiona feels about turning into an ugly ogress after the sunset every evening. So (2b) is optimally relevant as an assertion about how she feels. The implicated premise (d) *If Fiona asserts that Princess and ugly do not go together then Fiona thinks Princesses are not supposed to be ugly* processed together with the explicature FIONA$_i$ HAS

ASSRETED THAT THE WORD 'PRINCESS' AND THE WORD 'UGLY' DO NOT GO TOGETHER (as in (e)) leads to the recovery of the implicated conclusion, as spelt out in (f). Again the relevance theoretic model predicts that the interpreter may form further inferences, such as (g), but it will be done on his own responsibility.

Thus relevance theory can account for two alternative interpretations: one intended by the speaker and the other resulting from processing her utterance in the context different from the one the speaker has expected to be the first accessible one. The analyses provided are supposed to illustrate how relevance explicates the intricacies of verbal comprehension and in particular how it accounts for disambiguation.

Concluding remarks

Relevance theory, rooted in some observations about how human cognition works, is a model of overt intentional communication. It postulates the existence of the cognitive economy principles, defined as the Cognitive and Communicative Principles of Relevance, which underlie the process of communicating and interpreting messages. Even though verbal comprehension starts with decoding, it is inferential through and through: the comprehender necessarily needs to enrich the decoded logical form and infer the intended meaning, which is assumed to happen though the relevance oriented automatic processing.

The analytic tools developed within this framework have been applied to elucidate a vast range of diverse linguistic phenomena, embracing figurative language (cf. Pilkington 2000), language acquisition (cf. Bezuidenhout and Sroda 1998), and second language development (Paiva and Foster-Cohen 2004). Thus the principles and procedures described above and applied in order to explain how individuals interpret messages and disambiguate utterances have proved useful to account for other complex communication phenomena. What is more, the major claims of relevance theory have been verified in empirical studies and their psycholinguistic plausibility has been supported by evidence (cf. Gibbs and Bryant (2008); Noveck 2001; van der Henst and Sperber 2004; van der Henst *et al.* 2002). Unfortunately, the very thought processes that lie at the heart of relevance theoretic analyses are notoriously difficult to explore. As it has been indicated above, the speculative nature of assumptions formed as part and parcel of verbal processing is a vulnerable aspect of relevance machinery.

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